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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/837,459	04/19/2001	Hiroshi Izawa	35.C15313	6750

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EXAMINER	
ZERVIGON, RUDY	
ART UNIT	PAPER NUMBER
1763	

DATE MAILED: 02/24/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

UD

Office Action Summary	Application No.	Applicant(s)	
	09/837,459	IZAWA ET AL.	
	Examiner	Art Unit	
	Rudy Zervigon	1763	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *21 January 2005*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-3 and 5-27* is/are pending in the application.

4a) Of the above claim(s) *7-12 and 17-26* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-3,5,6,13-16 and 27* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *19 April 2004* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on December 2, 2004 has been entered.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3. Claims 1, 2, 16, and 27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yamasaki, Hideaki et al (US 20030037730 A1) in view of Fujita; Yoshiyuki et al. (US 6,238,488 B1). Yamasaki teaches:

i. A deposited-film formation apparatus (Figure 1; [0016]) comprising: an inside-evacuatable chamber (10; Figure 1; [0046]); a gas feed piping (12; Figure 1; [0046]) for feeding a material gas into the chamber (10; Figure 1; [0046]); an evacuation means (26; Figure 1; [0051]) for evacuating the inside of the chamber (10; Figure 1; [0046]) - Support for this portion of claims 1, 16, and 27 is found in section [0058] of Applicant's originally filed specification. Specifically, the specification teaches "106, a vacuum

pump". Yamasaki teaches a vacuum pump 26, Figure 1. As such, Yamasaki teaches an equivalent apparatus that performs the function of chamber vacuum generation. As a result, Yamasaki's prior art element of 26 for chamber vacuum generation perform the identical function of chamber vacuum generation in substantially the same way, and produces substantially the same results as the corresponding elements disclosed in the specification (MPEP 2183).

Yamasaki further teaches:

ii. a first evacuation piping (36; Figure 1) which connects the chamber (10; Figure 1; [0046]) and the evacuation means (26; Figure 1; [0051]); and a second evacuation piping (34; Figure 1), with a piping connection part (90° elbow; Figure 1), for guiding evacuation through the evacuation means (26; Figure 1; [0051]), wherein, the deposited-film formation apparatus (Figure 1; [0016]) has a temperature sensor (64; Figure 4; [0084] – 28; Figure 1), and the temperature sensor (64; Figure 4; [0084] – 28; Figure 1) is provided on the downstream side of the piping connection part (90° elbow; Figure 1), as claimed by claim 1

Applicant's additional claim limitation of a "temperature sensor which detects the heat of reaction that is generated when the material gas fed into the chamber reacts with oxygen contained in air having entered from the outside of the deposited-film formation apparatus" is a requirement of intended use. Further, it has been held that claim language that simply specifies an intended use or field of use for the invention generally will not limit the scope of a claim (Walter , 618 F.2d at 769, 205 USPQ at 409; MPEP 2106). Additionally, in apparatus claims, intended use must result in a structural difference between the claimed invention and the prior art

in order to patentably distinguish the claimed invention from the prior art. If the prior art structure is capable of performing the intended use, then it meets the claim (In re Casey,152 USPQ 235 (CCPA 1967); In re Otto , 136 USPQ 458, 459 (CCPA 1963); MPEP2111.02). That Yamasaki's temperature sensor (64; Figure 4; [0084] – "thermocouple") measures heat (by definition), a heat "of reaction" is indistinguishable from other heats especially when the claim 1 "heat of reaction" is between an unknown reactant of "the material gas" and oxygen. Further, that Yamasaki's temperature sensor (64; Figure 4; [0084] – "thermocouple") is capable of measuring a "heat" of reaction is provided by Yamasaki:

"

[0084] A thermocouple 64, i.e., a temperature sensor, is detachably attached to the trap body 56. The thermocouple 64 has an output terminal connected to a heater power controller by a wire 66. Power is supplied from the heater power supply circuit to the built-in heating coil 54 embedded in the heater body 52 to generate heat by the heater coil 54. Heat generated by the heater coil 54 is transferred through the heater body 52 to the trap body 56 to heat the trap body 56 and the trapping plates 60. The heater power controller controls power supply to the heating coil 54 so that the temperatures of the trap body 56 or the trapping plates 60 coincide with a predetermined reaction temperature or a predetermined trapping temperature.

"

iii. The deposited-film formation apparatus (Figure 1; [0016]) according to claim 1, wherein the temperature sensor (64; Figure 4; [0084]) is provided at the evacuation piping, as claimed by claim 2 – Yamasaki:

"

[0078] FIG. 4 shows a trapping device in a first embodiment according to the present invention suitable for use as the high-temperature trapping device 28.

"

iv. A vacuum system comprising: a chamber (10; Figure 1; [0046]); a gas feed means for feeding a gas into the chamber (10; Figure 1; [0046]); and an evacuation means (26; Figure 1; [0051]) and an evacuation piping (34, 36; Figure 1) by and through which the inside of the chamber (10; Figure 1; [0046]) is evacuated, wherein, the vacuum system has a temperature sensor (64; Figure 4; [0084]), as claimed by claim 16 –

Applicant's additional claim limitation of a "temperature sensor which detects the heat of reaction that is generated when the material gas fed into the chamber reacts with oxygen contained in air having entered from the outside of the deposited-film formation apparatus" is a requirement of intended use. Further, it has been held that claim language that simply specifies an intended use or field of use for the invention generally will not limit the scope of a claim (Walter , 618 F.2d at 769, 205 USPQ at 409; MPEP 2106). Additionally, in apparatus claims, intended use must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure is capable of performing the intended use, then it meets the claim (In re Casey,152 USPQ 235 (CCPA 1967); In re Otto , 136 USPQ 458, 459 (CCPA 1963); MPEP2111.02). See above.

v. A deposited-film formation apparatus comprising: an inside-evacuatable chamber (10; Figure 1; [0046]) (10; Figure 1; [0046]); a gas feed piping (24; Figure 1; [0046]) for feeding a material gas into the chamber (10; Figure 1; [0046]); an evacuation means (26;

Figure 1; [0051]) for evacuating the inside of the chamber (10; Figure 1; [0046]) – claim 27; Support for this portion of claims 1, 16, and 27 is found in section [0058] of Applicant's originally filed specification. Specifically, the specification teaches "106, a vacuum pump". Yamasaki teaches a vacuum pump 26, Figure 1. As such, Yamasaki teaches an equivalent apparatus that performs the function of chamber vacuum generation. As a result, Yamasaki's prior art element of 26 for chamber vacuum generation perform the identical function of chamber vacuum generation in substantially the same way, and produces substantially the same results as the corresponding elements disclosed in the specification (MPEP 2183).

Yamasaki further teaches:

vi. a first evacuation piping (36; Figure 1) which connects the chamber (10; Figure 1; [0046]) and the evacuation means (26; Figure 1; [0051]); and a second evacuation piping (34; Figure 1) for guiding evacuation though the evacuation means (26; Figure 1; [0051]), wherein the deposited-film formation apparatus has a temperature sensor (64; Figure 4; [0084] – 28; Figure 1) which detects the heat of reaction (see above) that is generated when the material gas fed into said chamber (10; Figure 1; [0046]) reacts with oxygen contained in air having entered from the outside of the deposited-film formation apparatus and the first evacuation piping (36; Figure 1) or the second evacuation piping (34; Figure 1) gas has a piping (24; Figure 1; [0046]) connection part (90° elbow; Figure 1) - claim 27

Yamasaki does not teach that his temperature sensor (64; Figure 4; [0084] – 28; Figure 1) measures temperatures between about 0°C and 150°C, and Yamasaki does not teach that the

temperature sensor (64; Figure 4; [0084] – 28; Figure 1) is provided 5 cm to 20 cm on the side downstream to the piping connection part (90° elbow; Figure 1), as claimed by 27.

Fujita teaches a deposited-film formation device (Figure 1) including a thermocouple (48E, Figure 1; column 9, lines 13-23) that measures effluent gas tempertures up to 425°C which is in a "region" of the thermocouple.

It would have been obvious to one of ordinary skill in that art at the time the invention was made to replace Yamasaki's temperature thermocouple (64; Figure 4; [0084] – 28; Figure 1) with Fujita's thermocouple (48E, Figure 1; column 9, lines 13-23), and for Yamasaki to optimize the dimension(s) of his apparatus.

Motivation to replace Yamasaki's temperature thermocouple (64; Figure 4; [0084] – 28; Figure 1) with Fujita's thermocouple (48E, Figure 1; column 9, lines 13-23), and for Yamasaki to optimize the dimension(s) of his apparatus. is for using a wider range of processing gases as suggested by the gas decomposition properties as taught by Yamasaki ([0006]). Further, it is well established that changes in apparatus dimensions are within the level of ordinary skill in the art.(Gardner v. TEC Systems, Inc. , 725 F.2d 1338, 220 USPQ 777 (Fed. Cir. 1984), cert. denied , 469 U.S. 830, 225 USPQ 232 (1984); In re Rose , 220 F.2d 459, 105 USPQ 237 (CCPA 1955); In re Rinehart, 531 F.2d 1048, 189 USPQ 143 (CCPA 1976); See MPEP 2144.04)

4. Claims 3, 5, and 13-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yamasaki, Hideaki et al (US 20030037730 A1) and Fujita; Yoshiyuki et al. (US 6,238,488 B1) in view of Carlsen, Kurt A. et al. (US 6,155,289 A). Yamasaki and Fujita are discussed above. Yamasaki and Fujita do not teach:

i. Yamasaki's deposited-film formation apparatus (Figure 1; [0016]) according to claim 1, wherein Yamasaki's temperature sensor (64; Figure 4; [0084]) is provided on the side downstream to Yamasaki's evacuation means (26; Figure 1; [0051]), as claimed by claim 3

ii. Yamasaki's deposited-film formation apparatus (Figure 1; [0016]) according to claim 1, which has a leak judgment means which judges the occurrence of a leak on the basis of a measured value of Yamasaki's temperature sensor (64; Figure 4; [0084]), and a feed-gas feed control means which stops the feeding of material gases upon detection of a leak by the leak judgment means, as claimed by claim 5

iii. a leak judgment means which judges the occurrence of a leak on the basis of a measured value of Yamasaki's temperature sensor (64; Figure 4; [0084]), as claimed by claim 13

iv. Yamasaki's deposited-film formation apparatus (Figure 1; [0016]) according to claim 13, wherein Yamasaki's temperature sensor (64; Figure 4; [0084]) is provided in plurality, and the leak judgment means judges the leak to have occurred when the measured values of the temperature sensor (64; Figure 4; [0084]) provided in plurality increase, as claimed by claim 14

v. Yamasaki's deposited-film formation apparatus (Figure 1; [0016]) according to claim 14, wherein Yamasaki's temperature sensor (64; Figure 4; [0084]) are provided along the flow of gas, and the leak judgment means judges the leak to have occurred when the measured values of the temperature sensor (64; Figure 4; [0084]) increase along the flow of gas, as claimed by claim 15

Carlsen teaches a leak detection system (Figure 1; column 4, lines 23-51) including:

vi. Carlsen's deposited-film formation apparatus (Figure 1; column 1, lines 10-28), which has a leak judgment means (40; Figure 1; column 4, lines 23-51) which judges the occurrence of a leak on the basis of a measured value of Carlsen's temperature sensor (60; Figure 1; column 4, lines 23-51), and a feed-gas feed control means (40; Figure 1; column 4, lines 23-51) which stops the feeding of material gases upon detection of a leak by the leak judgment means, as claimed by claim 5

Support for "leak judgment means" is found in section [0025]. Specifically, the specification teaches:

"

The present invention still further provides a leak judgment method comprising the steps of feeding a reactive gas to the inside of a vacuum system having a chamber and an evacuation piping, measuring temperature of the vacuum system at a plurality of spots thereof, and judging the occurrence of a leak on the basis of a change with time of a plurality of measured values obtained by measuring the temperature.

"

Carlsen teaches a leak judgment method comprising the steps of feeding a reactive gas (14; Figure 1) to the inside of a vacuum system having a chamber (50) and an evacuation piping (54), measuring temperature (60; Figure 1; column 4, lines 23-51) of the vacuum system at a plurality of spots thereof, and judging the occurrence of a leak on the basis of a change with time of a plurality of measured values obtained by measuring the temperature - column 4, lines 23-51. As such, Carlsen teaches an equivalent apparatus that performs the function of leak detection. As a result, Carlsen's prior art elements of 50, 54, and 60 for leak detection perform the identical

function of leak detection in substantially the same way, and produces substantially the same results as the corresponding elements disclosed in the specification (MPEP 2183).

vii. a leak judgment means (40; Figure 1; column 4, lines 23-51) which judges the occurrence of a leak on the basis of a measured value of Carlsen's temperature sensor (60; Figure 1; column 4, lines 23-51), as claimed by claim 13

viii. Carlsen's deposited-film formation apparatus (Figure 1; column 1, lines 10-28) according to claim 14, wherein Carlsen's temperature sensor (60; Figure 1; column 4, lines 23-51) is provided along the flow of gas (26, Figure 1), and the leak judgment means (40; Figure 1; column 4, lines 23-51) judges the leak to have occurred when the measured values of the temperature sensor (60; Figure 1; column 4, lines 23-51) increase along the flow of gas, as claimed by claim 15

It would have been obvious to one of ordinary skill in that art at the time the invention was made to add Carlsen's leak judgment means to Yamasaki's down-stream piping (38; Figure 1) including adding plural temperature sensors.

Motivation to add Carlsen's leak judgment means to Yamasaki's down-stream piping including adding plural temperature sensors is to prevent system gas line leaks as taught by Carlsen (column 4, lines 28-51). Further, it is well established that the duplication of parts is obvious (In re Harza , 274 F.2d 669, 124 USPQ 378 (CCPA 1960) MPEP 2144.04).

5. Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Yamasaki, Hideaki et al (US 20030037730 A1) and Fujita; Yoshiyuki et al. (US 6,238,488 B1) in view of Saitoh, Keishi et al. (US 5,417,770 A). Yamasaki and Fujita are discussed above. Yamasaki does not teach the deposited-film formation apparatus (Figure 1; [0016]) according to claim 1, which has

the chamber (10; Figure 1; [0046]) in plurality and a means for moving a belt like member continuously through the insides of the chambers in their lengthwise direction.

Saitoh teaches plural chambers (2002, 2031, ...; Figure 20) including means for moving a belt like member (2004-2007; Figure 20).

It would have been obvious to one of ordinary skill in that art at the time the invention was made to reproduce Yamasaki's deposited-film formation apparatus (Figure 1; [0016]) and add Saitoh's means for moving a belt like member.

Motivation to reproduce Yamasaki's deposited-film formation apparatus and add Saitoh's means for moving a belt like member is to produce photovoltaic devices by CVD as taught by Saitoh (column 1, lines 20-25).

Response to Arguments

6. Applicant's arguments filed December 2, 2004 have been fully considered but they are not persuasive.

7. Applicant's arguments are directed to the context of the amendments to claims 1 and 16, and to newly added claim 27. The Examiner has proposed the above new grounds for rejection based on Applicant's amendments to the claims.

Conclusion

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Examiner Rudy Zervigon whose telephone number is (571) 272.1442. The examiner can normally be reached on a Monday through Thursday schedule from 8am through 7pm. The official fax phone number for the 1763 art unit is (703) 872-9306. Any Inquiry of a general nature or relating to the status of this application or proceeding should be

directed to the Chemical and Materials Engineering art unit receptionist at (571) 272-1700. If the examiner can not be reached please contact the examiner's supervisor, Parviz Hassanzadeh, at (571) 272-1439.

2/22/05